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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/854,172

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Robert J. Bernardi

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EXAMINER

BRINEY III, WALTER F

ART UNIT

PAPER NUMBER

2615

DATE MAILED: 07/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/854,172

Applicant(s)

BERNARDI ET AL.

Examiner

Walter F. Briney III

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-68 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 54-63 is/are allowed.
- 6) ☒ Claim(s) 1-4, 12, 19, 26-29, 31-40, 44-46, 49-53 and 64-68 is/are rejected.
- 7) ☒ Claim(s) 5-11, 13-18, 20-25, 30, 41-43, 47 and 48 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. **Claims 1-4, 12, 19, 26-29, 31-40, 44-46, 49-53 and 64-68 are rejected under 35 U.S.C. 102(e) as being anticipated by Bobisuthi (US patent 6,549,630)**

The applied reference has one common inventor as well as a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Claim 1 is limited to “a system for sensing and compensating for at least one error signal.” Bobisuthi discloses a signal expander with discrimination between close and distant acoustic sources. As well be shown, the invention of Bobisuthi “senses an error signal” 470 and “compensates for” said error signal by adjusting variable gain block 315.

Attention is drawn to figure 7 of Bobisuthi. The figure depicts two microphones 310 and 330. These microphones correspond the “first microphone” and “second microphone” of “an acoustic pick-up device” as claimed. As seen in figures 2B and 2C, the microphones are inherently spaced apart from a source, and thus, are disposed at a “first distance” and a “second distance” from any arbitrary “acoustic source.” It is noted that when a source 305 is transmitting, microphones 310 and 330 are “receiving the acoustic signals from the desired acoustic source, and in response, transducing the acoustic signals into audio signals” 400 and 405.

Figure 7 further depicts a “proximity estimation circuit” 325, whose details are depicted in figure 2A. Figure 2A depicts that the proximity estimation circuit 325 receives signals 400 and 405 and produces an “error signal” 470 in response. Signal 470 represents a ratio of signal 400 to signal 405. In this way, when source 305 is close to “first microphone” 310, the ratio is larger than unity as seen in figures 4B-E. However, when source 305 is far from “first microphone” 310, the ratio is very near unity as seen in figures 4F-4I. In other words, signal 470 determines when the “first microphone” of the “acoustic pick-up device” is near or far from the source 305. Because the system of Bobisuthi is designed such that microphone 310 is to be closer to the source than microphone 330, it follows that signal is indicating, at least, “a distance mispositioning relative to the desired acoustic source.” It is clear that if source 305 is transmitting acoustic signals and microphone 310 is mispositioned as seen in figure 4F, then the resulting output signal 322 taken after subtracting signals 400 and 405 will be near zero, thus eliminating the intelligibility of the signal received from the

source. This clearly corresponds to a failure “to achieve proper and/or adequate noise cancellation. And resulting in the acoustic signals being degraded.”

Returning to figure 2A, it is noted that proximity estimation circuit 325 includes two detectors 370 and 380. These detectors provide rectified envelopes of the signals 400 and 405, respectively, and thus, correspond to the “first circuit” as recited. See column 7, lines 41-51. The envelopes of the detectors correspond to the “first and second time averages” as recited. Finally note that control function 715 of figure 7 uses signal 470 to control variable gain block (i.e. a “controller”) 315, which provides “the audio signals from at least one of the first microphone and the second microphone to the output.” Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 2 is limited in part to “the system according to claim 1,” as covered by Bobisuthi. As disclosed by Bobisuthi in column 7, lines 41-51, each detector 370 and 380 rectifies an input signal and produces an envelope signal at the output. This means that detector 370 receives the audio signals from the first microphone 310, calculates the absolute value by rectifying it, and then generates an envelope. The same goes for detector 380 and the audio signals from the second microphone 330. Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 3 is limited in part to “the system according to claim 2,” as covered by Bobisuthi. Figure 7 depicts that signal 470, i.e. the “error signal,” is used by a comparator 335 as a speech activity output. As shown apropos the rejection of claim 1, signal 470 is an error signal indicating mispositioning, so it follows that another output that acts as a function of the error signal is likewise an “an indication of the acoustic

pick-up device being mispositioned.” Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 4 is limited in part to “the system according to claim 3,” as covered by Bobisuthi. Figure 7 alone depicts a speech activity output, however, Bobisuthi discloses that the output is used to enable/disable speech-to-text conversion. In this way, when source 305 is transmitting, but no speech is being converted, mispositioning is visually indicated. See column 10, lines 15-17 and 25-34. Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 12 is limited in part to “the system according to claim 3,” as covered by Bobisuthi. Figure 7 alone depicts a speech activity output, however, Bobisuthi discloses that the output is used to suppress sidetones. Note that sidetones are signal reflections from a microphone to a speaker in typical telephony handsets and headsets. In this way, when source 305 is transmitting and speech is being output by variable gain block 315, sidetones are suppressed, which is apparent to the speaker. See column 10, lines 15-24. Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 19 is limited in part to “the system according to claim 3,” as covered by Bobisuthi. Both the visual and audio indicators treated above apropos the rejections of claims 4 and 12 are “sensory indicators.” Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 26 is limited in part to “the system according to claim 1,” as covered by Bobisuthi. Figure 7 clearly indicates that audio signals 400 and 405 must first be

received by proximity estimation circuit 325 before error signal 470 can be determined.

Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 27 is limited in part to “the system according to claim 1,” as covered by Bobisuthi. Column 13, lines 26-30, of Bobisuthi discloses that both microphones 310 and 330 are “omnidirectional microphones.” Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 28 is limited in part to “the system according to claim 27,” as covered by Bobisuthi. Column 12, lines 44-64, disclose that amplifier 705 generates a “noise cancelling microphone signal 710 generated by a difference between the audio signals 400 received from the first microphone 310 and the audio signals 405 received from the second microphone 330.” Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 29 is limited in part to “the system according to claim 1,” as covered by Bobisuthi. Figure 2A clearly depicts that the proximity estimation circuit 325 of figure 7 “detects the acoustic pick-up device being mispositioned by using a ratio 470 (before being clipped and filtered) of the audio signals 400 received from the first microphone 310 to the audio signals 405 received from the second microphone 330.” Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 31 is limited in part to “the system according to claim 1,” as covered by Bobisuthi. Bobisuthi indicates that “controller” 715 is actually integrated within variable gain block 315. See column 12, lines 38-43. This means that variable gain block 315 is actually the “controller” of claim 1. Moreover, block 315 is an amplifier, i.e. “switch.” Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 32 is limited in part to “the system according to claim 1,” as covered by Bobisuthi. Bobisuthi indicates that “controller” 715 is actually integrated within variable gain block 315. See column 12, lines 38-43. This means that variable gain block 315 is actually the “controller” of claim 1. Moreover, block 315 is an amplifier, i.e. “switch.” The output signal is a “combined signal 710 generated from a difference between the audio signals 400 from the first microphone 310 and the audio signals 405 from the second microphone 330.” Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 33 is limited in part to “the system according to claim 1,” as covered by Bobisuthi. Difference amplifier 705 corresponds to “a device adapted to produce a combined signal based on the audio signals 400 and 405 received from the first 310 and the second 330 microphones.” The “error signal” 470 is used to select the amount of gain to apply to the combined signal, which effectively “selects the combined signal to be transmitted to the output.” Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 34 is limited in part to “the system according to claim 33,” as covered by Bobisuthi. The “device” 705 is clearly a differential amplifier. See column 12, lines 46-48. Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 35 is limited in part to “the system according to claim 1,” as covered by Bobisuthi. Figure 2A illustrates that the proximity estimation circuit 325 of figure 7 includes a divider 360 that serves as a “sensor capable of determining the acoustic pick-up device being mispositioned” as explained in the rejection of claim 1. Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 36 is limited in part to “the system according to claim 1,” as covered by Bobisuthi. Bobisuthi discloses an optional, i.e. “programmable,” delay unit 731 that provides a “phase shift” to the audio signals 405 from the second microphone 330. The delay unit operates in the range of zero seconds of delay to any predetermined value. Amplifier 705 serves as a “device producing a combined signal 710 based on those signals 405 being phase shifted and on the audio signals received from the first microphone 310.” Figure 7 clearly illustrates that the combined signal 710 is transferred to the output 322. Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 37 is limited in part to “the system according to claim 36,” as covered by Bobisuthi. The “device” 705 is clearly a differential amplifier. See column 12, lines 46-48. Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 38 is limited in part to “the system according to claim 1,” as covered by Bobisuthi. The “first microphone” 310 is intended to be “disposed closer to the “desired acoustic source 305 than the second microphone 330.” See column 7, lines 14-17. Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 39 is limited in part to “the system according to claim 1,” as covered by Bobisuthi. Bobisuthi disclose a comparator 370/370/335 that serves as a “device configured to determine whether the desired acoustic source is operational,” i.e. speech activity output. Bobisuthi further discloses “a sensor 375 configured to determine that the acoustic pick-up device is mispositioned.” Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 40 is limited in part to “the system according to claim 39,” as covered by Bobisuthi. Even though the “pick-up device” of Bobisuthi may be mispositioned, a combined signal 710 will be provided to the output 332. Therefore, Bobisuthi makes obvious all limitations of the claim.

Claim 44 is limited in part to “the system according to claim 1,” as covered by Bobisuthi. Bobisuthi discloses a headset as seen in figure 2B with the “first microphone 310 and second microphone 330 disposed thereon.” As noted in column 7, lines 14-17, the “first microphone 310 is disposed closer to the desired acoustic source 305 than the second microphone 330.” Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 45 is limited in part to “the system according to claim 1,” as covered by Bobisuthi. Bobisuthi discloses a handset as seen in figure 2C with the “first microphone 310 and second microphone 330 disposed thereon.” As noted in column 7, lines 14-17, the “first microphone 310 is disposed closer to the desired acoustic source 305 than the second microphone 330.” Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 46 is limited in part to “the system according to claim 1,” as covered by Bobisuthi. Figure 3 of Bobisuthi depicts that the output of detector 380, which is associated with the audio signals 405 from the second microphone 330, is associated with a gain provided by log amp 460. This gain is provided for comparison with the audio signals 400 from the first microphone 310. Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 49 is limited to “a headset.” The signal expander with discrimination between close and distant acoustic sources disclosed by Bobisuthi is clearly for use

with a "headset" as seen in figure 2B. As seen therein, the headset 392 includes a "supporting device" as well as a "boom" that is located near a "mouth of a user generating acoustic signals." See column 7, lines 14-21. The "acoustic pick-up device", the "position estimation circuit" and the "controller" of this claim have already been shown to be anticipated by Bobisuthi apropos the rejection of claim 1. Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 50 is limited in part to "the system according to claim 49," as covered by Bobisuthi. The qualities of the "first circuit" recited in this claim have already been shown to be anticipated by Bobisuthi apropos the rejection of claim 2. Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 51 is limited to "a system for controlling a directional response of at least one of a first microphone and a second microphone." The "first microphone means," the "second microphone means," the "position estimation means" and the "control means" of this claim have already been shown to be anticipated by Bobisuthi apropos the rejection of claim 1. In addition, it is noted that the manner in which the system of this claim controls a directional response of at least one of a first microphone and a second microphone is not set forth, rendering the intended use of the system set forth in the preamble not patentably limiting. Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 52 is limited in part to "the system according to claim 51," as covered by Bobisuthi. The preamble of claim 51 is substantiated by the body of this claim, and thus, is given patentable weight herein. Bobisuthi depicts a differential amplifier 705 in

figure 7. This amplifier “adjusts a polar pattern of the audio signals 400 and 405 received from the first 310 and second 330 microphone means to provide the audio signals to the output 322.” See column 12, lines 44-64. Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 53 is limited in part to “the system according to claim 51,” as covered by Bobisuthi. The preamble of claim 51 is substantiated by the body of this claim, and thus, is given patentable weight herein. Bobisuthi depicts a differential amplifier 705 in figure 7. This amplifier provides audio signals to the output that “include noise cancelling from a combination of the audio signals 400 and 405 from both the first 310 and second 330 microphones.” See column 12, lines 44-64. Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 64 is limited to “a method of sensing and compensating for an error.” This method is inherently performed by the elements of Bobisuthi. In particular, the “first microphone” 310 and “second microphone” 330 will clearly receive signals from a “desired acoustic source” 305, and transduce the received signals into “audio signals” 400 and 405. Detectors 370 and 380 will determine “first and second time averages, respectively.” Divider 360 will “detect an error signal 470 from the audio signals 400 and 405 associated with the first 310 and second 330 microphones,” where the error signal represents an estimate as shown apropos the rejection of claim 1. Figure 7 of Bobisuthi depicts that the error signal 470 is used to select the amount of gain, and thus, the amount of signal 710 to provide as output signal 322, i.e. “selectively provide the audio signals from at least one of the first and second microphones to an output in

order to compensate for the mispositioning.” Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 65 is limited in part to “the method according to claim 64,” as covered by Bobisuthi. Bobisuthi discloses that the output signal 322 is a “noise cancelling signal” from the “first and second microphones.” See column 12, lines 44-64. Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 66 is limited in part to “the method according to claim 64,” as covered by Bobisuthi. The process of “using the error signal 470 to selectively provide the audio signals 400 and 405 from at least one of the first 310 and second 330 microphones to an output 322” comprises combining the signals 400 and 405 using amplifier 705, which inherently adjusts a “directional response of at least one of the first 310 and second 330 microphones.” Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 67 is limited in part to “the method according to claim 66,” as covered by Bobisuthi. Bobisuthi discloses that the “directional response” of the first microphone 310 that is changed as an “omnidirectional pattern.” See column 13, lines 23-31. Therefore, Bobisuthi anticipates all limitations of the claim.

Claim 68 is limited in part to “the method according to claim 66,” as covered by Bobisuthi. Bobisuthi discloses that the “directional response” of the first microphone 310 that is changed as an “omnidirectional pattern.” See column 13, lines 23-31. Therefore, Bobisuthi anticipates all limitations of the claim.

Allowable Subject Matter

The following is a statement of reasons for the indication of allowable subject matter:

2. **Claims 5-11, 13-18, 20-25, 30, 41-43, 47 and 48 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.**

Claims 5-11 are limited in part to "the system according to claim 4," as covered by Bobisuthi. Although Bobisuthi discloses using a computer screen as a "visual indicator," there is no disclosure of using a light emitting diode in the positions claimed. Thus, claims 5-11 are allowable over the cited prior art.

Claims 13-18 are limited in part to "the system according to claim 12," as covered by Bobisuthi. Although Bobisuthi discloses using a sidetone attenuator as an "audio indicator," there is no disclosure of positioning a tone generator in the positions claimed. Thus, claims 13-18 are allowable over the cited prior art.

Claims 20-25 are limited in part to "the system according to claim 19," as covered by Bobisuthi. Although Bobisuthi discloses using a sidetone attenuator as an "audio indicator," there is no disclosure of positioning a motion generator in the positions claimed. Thus, claims 20-25 are allowable over the cited prior art.

Claim 30 is limited in part to "the system according to claim 1," as covered by Bobisuthi. Bobisuthi discloses using either two omnidirectional microphones or two directional microphones, but does not disclose mixing between the two types of microphones. See column 13, lines 23-33. Thus, claim 30 is allowable over the cited prior art.

Claim 41 is limited in part to “the system according to claim 39,” as covered by Bobisuthi. Neither a “second circuit determining progressive levels of the acoustic pick-up device being mispositioned” nor a “third circuit determining a corresponding phase shift based on a particular on the progressive levels determined” are disclosed by Bobisuthi. Instead, a single level is determined by comparator 335. Despite only indicating one level, the comparator 335 is not used for phase shift determination. Thus, claim 41 is allowable over the cited prior art.

Claims 42 and 43 are limited in part to “the system according to claim 41,” and thus, are allowable over the cited prior art.

Claim 47 is limited in part to “the system according to claim 46,” as covered by Bobisuthi. There simply is no “pulse stretching circuit” in the system disclosed by Bobisuthi. Thus, claim 47 is allowable over the cited prior art.

Claim 48 is limited in part to “the system according to claim 47,” and thus, is allowable over the cited prior art.

3. Claims 54-63 are allowed.

Claim 54 is limited to “a method of controlling a directional response of at least one of a first and second microphones.” While Bobisuthi was shown to anticipate most of the limitations recited in this claim, Bobisuthi does not disclose “using the error signal 470 to select the directional response corresponding to at least one of the first 310 and second 330 microphones in order to compensate for the first 310 and second microphones 330 being mispositioned.” While the claim implies that an absolute

selection of whether or not a directional response is actually used, Bobisuthi selects the amount of the combined directional response of both microphones to provide, but always uses the same combined directional response. Moreover, Bobisuthi never discloses clipping the output (i.e. deselecting the directional response), but rather discloses not providing any extra gain. See column 9, lines 1-3. Thus, claim 54 is allowable over the cited prior art.

Claims 55-63 are limited in part to "the method according to claim 54," and thus, are allowable over the cited prior art.

Response to Arguments

Applicant's arguments with respect to claims 1-68 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

As all rejections presented in this Office Action were not necessitated by the applicant's current amendment, this Action is **NON-FINAL**.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F. Briney III whose telephone number is 571-272-7513. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



SINH TRAN
SUPERVISORY PATENT EXAMINER

WFB